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ABSTRACT

Intended as an activities and resource guide for the Outdoorsman Project, this leader's guide supports the project's objectives of providing opportunities for each 4-H member to experience practical and real situations in the outdoors, instilling an appreciation of the environment in the participants, and encouraging environmental awareness. The manual contains: an outline of units and achievement day requirements; suggestions for program planning; safety tips for leaders; a checklist for campsites and equipment; basic first aid; resources in Alberta, Manitoba, Ontario, Saskatchewan, and British Columbia; a subject listing of information sources; a list of resource persons; environmental games (with a leader's guide); projects fostering environmental appreciation; answer guides for exercises in the various unit manuals; and a metric conversion table. (JMM)

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CANADA

Leaders Guide

WP474-78

PUBLISHED BY

Alberta
AGRICULTURE

This Manual is produced for 4-H members and leaders enrolled in the 4-H program and administered by:

The British Columbia Department of Agriculture
4-H Clubs Branch

Alberta
AGRICULTURE

4-H Branch

The University of Saskatchewan
Extension Division

The Manitoba Department of Agriculture
4-H and Youth Section, Community and Family Programs Branch

4-H MOTTO

"Learn to do by doing"

4-H PLEDGE

I pledge
My HEAD to clearer thinking,
My HEART to greater loyalty,
My HANDS to larger service,
My HEALTH to better living,
For my club, my community and my country

4-H GRACE

(Tune of Auld Lang Syne)

We thank thee, Lord, for blessings great
On this, our own fair land.
Teach us to serve thee joyfully,
With head, heart, health and hand.

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Leader's Guide

Introduction

The Outdoorsman manuals are intended as guides. You know best the capabilities and resources of the individual members of your group so you can tell what to use and what not to use. You may also have ideas of your own for activities and projects. By all means, use them!

The objectives of the Outdoorsman Project are:

1. To provide opportunities for each member to experience practical and real situations in the outdoors.

2. To instil in the participants an appreciation of the environment.

3. To encourage environmental awareness.

OUTLINE OF UNITS AND ACHIEVEMENT DAY REQUIREMENTS

All outdoor units will use two symbols relating to activities.

A maple leaf to indicate Achievement Day Requirements and

A butterfly to indicate Fun Time Action Projects to be done when time allows.

The units in the project are designed to give the club first basic skills. Therefore, in Unit I you may wish to teach the members such things as first aid, camp safety, some survival techniques, etc. prior to the club actually being in the outdoors. Several one night campouts in a suitable area would be ideal for this.

Unit I

Develop an outdoor kit for display purposes which includes:

1. Complete at least three activities under "Activities and Projects in the Outdoors".
2. Learn three knots and mount samples in outdoor kit.
3. Complete pacing and personal measurements.
4. Make a simple compass.
5. Write a diary of hike, field trip or campout.
6. Display records and sample of environmental study choosing one of the following: insects, pond, plants, trees.
7. Give at least one demonstration and include record of it in record-keeping section.
8. Complete a record of project meetings throughout the year.
9. Summarize special activities participated in throughout the year.
10. Include pictures of outdoor activities.

The Unit II member should be introduced to more advanced camping and survival techniques. We have suggested they learn how to find food, how to start a fire without matches, how to use a compass, and how to construct a simple shelter. Campouts could easily be extended to a three or four day period or longer if the club feels ready for it.

Unit II

Develop an outdoor kit for display purposes which includes:

1. Complete a detailed study of an animal or bird.

2. Present a summary of all wildlife observations using the chart in Record Book Section.

3. Present a record of plants observed and display photos or sketches in outdoor kit.

4. Make 2 plaster casts and mount in outdoor kit.

5. Complete compass exercises.

6. Learn 2 lashing techniques.

7. Guide a hike and give a knowledgeable commentary or present an environmental study.

8. Go camping and present a log or diary.

9. Complete the record book sections (club activities, meetings, pictures).

In Unit III the involvement and participation in several camping expeditions per year would be ideal. Outings should be planned to coincide with the different seasons of the year.

Summer - Mountain Camping
Winter - Winter survival camping and winter activities
Spring - Canoe camping
Fall - Trail ride camps - pack horse trips.

Unit III

Develop an outdoor kit for display purposes which includes:

1. Complete the record book, project meetings and special activities sheets.

2. Complete at least one of the "survival" activities.

3. Display sketches or photos of edible and poisonous berries.

4. Present an environmental study.

5. Complete the map and compass exercises.

6. Complete a food chain study.

Emphasis on developing basic outdoor cooking techniques as well as learning how to make cooking utensils is discussed in Outdoor Cookery.

Outdoor Cookery

1. Demonstrate at a meeting or special parents night.

2. Cook and serve a meal outdoors. For this meal, complete the evaluation sheet at the back of the Outdoor Cookery Manual. Include:

   Menu plan
   Cost of ingredients
   Type of fire and equipment used
   Overall success of meal

3. Make one piece of camping equipment such as: food bag, reflector oven, tableware roll, etc.

4. Complete record book.

Most projects involved with outdoor education should be done outdoors. Therefore, an Achievement Day should be adapted to suit your particular club. Some projects, such as plant and animal logs, can be displayed while projects such as orienteering, outdoor cookery, etc. must be experienced. Small model types of campfires, etc., can be set up by members to show what they have learned. However, a better idea for an Achievement Day would be for members to actually demonstrate their knowledge. This could be on a special end-of-the-year outing, a campout with parents, or an outing to a special campsite.

Most important, though, is that your Achievement Day is suitable for your club's situation.

SOME SUGGESTIONS FOR PROGRAM PLANNING

- The outdoorsman program should be made an enjoyable experience. Learning takes place best through experience - involvement and participation.

- The outdoorsman project should suit expressed interests of the participants.

- The most successful activities in outdoor programs are ones which allow young people to actively participate. Thus, camping, hiking and canoeing are examples of activities that could be the most successful parts of the program.

- To satisfy the needs of a wide variety of girls and boys, the focus in a camp situation should be a small group-centered program. Each group would be responsible for planning and carrying out their own project. The teaching of skills becomes secondary to individual and group development.

- Instruct or show when the NEED to do so arises. Do not give too much information; let the young people find it themselves so that they will experience the thrill of discovering for themselves.

- Instruction and practical experience forms an integral part of in-camping training prior to out trips, cook-outs or overnights.

- Refer to "Project and Activities in the Outdoors" in each manual for extra ideas for 4-H members.

- Involve Mom and Dad as much as possible. Both have probably experienced outdoors at several times and can offer knowledge while learning with their son or daughter.

- For demonstrations, divide campers into groups and select certain groups to demonstrate specific skills.

SAFETY TIPS NECESSARY FOR ALL LEADERS

The paramount thing for leaders to realize is that negligence may be construed as failure to do something an ordinary person would do under similar circumstances. It should be noted that there is no definition of negligence that is applicable to all situations.

A club leader is charged with "reasonable care such as a parent or ordinary prudence would exercise under comparable circumstances" in the planning and conducting of field trips or excursions. The following suggestions are made to reduce the probability of one's being held liable:

1. Be sure that this type of activity is justified in view of the club's program.

2. Plan all phases of the trip thoroughly.

3. Request approval of the trip from proper authorities in writing, and keep written approval on file.

4. Notify the home in a written statement of the destination, time (departure and arrival), mode of transportation and necessary expenditures.

5. Secure permission slip, or waiver form, signed by parent. It is important to note that this form merely indicates that the leader exercised reasonable prudence in notifying the parent of the trip, and secured the parent's permission to involve the participant in this type of activity. It in no way ensures the leader against suit. The parent cannot waive the child's right to sue. This also applies to waiver forms in other areas.

6. Make a personal pre-visit to inspect the facilities.

7. Determine what adult-member ratio would best provide adequate supervision and safety.

8. Provide each member with a set of rules for safety and conduct, and discuss them thoroughly.

9. Assign a partner to each member.

10. Check members at each boarding and departure, and periodically during the trip. Each leader should remain with the group throughout the entire trip.

11. Use only insured transportation facilities; that is school or chartered buses, taxis, trains and airlines.

12. Enlist the co-operation of one or several parents whom the leader in charge can notify in event of any delay en route. Parents should be notified of the service and encouraged to phone if enquiries are deemed necessary.

13. Have personal liability insurance. (Usually available from most general insurance agents.) Make yourself familiar with the coverage your board provides. Most boards will provide a written statement of insurance coverage.

14. Have knowledge of medical facilities and available assistance in local area; make sure of access of telephones; know the telephone numbers of local doctors.

15. Promote first aid training as an essential for counsellors, guides and supervising leaders. If possible extend this training to the children themselves.

16. Develop and practice emergency routines and procedures.

CHECK LIST FOR DIFFERENT CAMP SITUATIONS

Type of camp:

Introduction to the activity. (Brief description of what the activity is all about.)

1. Setting up Camp
   Selection of Campsite

   a. Drainage - Water Source
   b. Firewood supply
   c. Safe surroundings

2. Clothing
   - Footware
   - Underclothes
   - Overclothes

3. Food
   Menus - in camp and on the trail
   - Breakfast
   - Dinner
   - Supper

   Utensils
   - Cooking
   - Washing
   - Storage
   - Miscellaneous

4. Camping Skills
   - Fire Lighting
   - Using Knives and Axes
   - Lashing
   - Compass & Map Reading
   - First Aid
   - Survival

5. Supplies and Equipment
   - Packs
   - Survival Kit
   - First Aid Kit
   - Camp Furniture
   - Bedding
   - Personal Hygiene Supplies
   - Food

INJURIES - SOME BASIC FIRST AID TREATMENT

Specific Cases Common With Campers

A. Nosebleeds

1. Seat child with head slightly forward and down.
2. Loosen tight clothing around the neck, chest and waist.
3. Have the person keep his mouth open and breathe through mouth.
4. Pressure by compressing the nostrils.
5. Do not blow nose; avoid swallowing blood.

B. Fainting

Causes

1. Fatigue.
2. Hunger.
3. Fear, emotional shock.

Signs

1. Face becomes pale.
2. Perspiration on forehead.
3. Dizziness.
4. Shallow breathing.
5. Weak pulse.

Action

1. Anticipate fall if possible.
2. Have camper lie down.
3. Loosen tight clothing.
4. Apply cold water to face and head.

C. Sprains

Action

1. Elevate limb and rest joint from use.
2. Use of pressure bandage to reduce swelling.
3. If sprain is extensive seek medical advice.

D. Bruises

Action

Apply ice or cold compresses to reduce the swelling and relieve pain.

E. Fractures

Action

1. In any kind of fall, leave the child lying flat. (In the case of a back injury, moving him could result in paralysis.)

2. Determine area of fracture.

   Prevent further movement of fragments which might well result in a more complicated fracture.

   Prevention of movement:

   a. Support affected part to prevent bone ends from moving. (i.e. place your hands above and below the break.)
   b. Bandaging - bandage affected part to a firm part of the body (body splint)(e.g. arm to the chest, broken leg to the good leg).
   c. Splints - may be required only for a long journey when body splinting not possible. Special care and experience is essential in applying a splint.

F. Burns

a. Sunburn - prevention is the keyword.

Action

1. Apply plain petroleum jelly over burned areas.
2. If itching occurs, apply calamine lotion.
3. If blistering and fever result, medical examination is advised.

b. Dry Heat Burns and Scalds

Action

1. Reduce local effects of heat which leads to more damage - cool the area with cold water for at least ten (10) minutes.
2. Control shock
   - reassure.
   - give drinks of water or tea to replace fluid loss which occurs when burned. Should only be done if person is conscious.
3. Prevent infection
   - the burnt area and clothing over it will be sterilized. Avoid unnecessary handling of the burnt area.
   - cover area with sterile dressings which should be kept wet if possible.
   - DO NOT APPLY anything else except water and sterile dressings over burn. If neither available it is better to do nothing to burnt area.
   - remove rings immediately if hand is burnt.
   - do not pop blisters. If the burnt area is small and no blistering occurs, apply sterile petroleum jelly and bandage securely.

G. Convulsions

Action
1. Do not leave person alone.
2. Prevent tongue biting with a mouth gag.
3. Never try to stop a person from convulsing! Remove articles from area that may harm him.
4. Keep warm and quiet.
5. Report to or call a physician for medical examination.

H. Ears

a. Discharge from ears

Action
1. Only cleanse outer ear to prevent further infection by inserting anything else.
2. Allow free drainage, using loose cotton plug in outer ear only.

b. Foreign bodies in ears (e.g. insects)

Action
1. Put a few drops of warm mineral oil or olive oil to make removal easier.
2. DO NOT attempt to remove foreign body!

All injuries or ear troubles (even ear aches) should be referred to a physician.

I. Eyes

a. Styes, discharge from eyes should be referred to a doctor.
b. Never attempt to remove a foreign body from an eye if it naturally can't be gotten rid of by tearing.
c. Any blows or lacerations to the eye should be investigated as blindness could result.

J. Poisoning - IMMEDIATE ACTION MAY SAVE A LIFE.

Action
1. Dilute poison in stomach with large quantities of liquid.
2. Induce vomiting by tickling back of throat with finger.
3. Don't waste time seeking proper antidote. Give: three to four glasses of soap suds; salt and water, baking soda and water or milk.

Vomiting is dangerous, however, only if ACIDS or strong alkalis have been swallowed.

K. Insect Bites

1. Bee stings, mosquito, black fly, and ant bites are ordinarily not serious.
2. Some people are allergic to bee stings - observe for signs of over-reaction.

Action
1. Cold applications for relief of pain and swelling.
2. Relieve itching.

L. Miscellaneous

a. Poison Ivy
- wash with hot water and soap.
- do not scrub with brush - use soft cloth.
- apply calamine lotion.

b. Headaches
- have the child rest in a quiet room.
- take temperature; if fever present watch carefully.
- avoid giving medications unless directed to do so by doctor.

c. Stomach-ache
- for abdominal pain, diarrhea or vomiting, keep child in bed and get medical attention.
- NEVER GIVE PAIN RELIEVING MEDICATION OR LAXATIVES! (may hide symptoms when doctor arrives).
- GIVE NO FOOD AND ONLY SMALL SIPS OF WATER.
- possible appendicitis must be ruled out by a doctor.
  SIGNS:
- vomiting may occur.
- overall abdominal pain.
- localizes in right lower part.
- if child appears very ill.

d. Blisters
- dangerous because of possible infection.
- prevention is the key word again.
- never apply adhesive plaster directly over blister.
- Tincture of benzoin may be applied to harden skin.
- never bust blister with a pin.
- if blister becomes infected, soak in hot salt solutions.

ALBERTA RESOURCES

ADDRESS	SUBJECT
Neil McNeil, Recreation Consultant Recreation, Parks and Wildlife 15th Floor, Centennial Building 10015 - 103 Avenue Edmonton, Alberta T5J 0H1 427-6563	Information regarding Blue Lake Camping Center (Hinton) Canoeing Outdoor recreation Environmental and outdoor games
Dan Stoker, Environmental Education Coordinator Department of the Environment 14th Floor, Oxbridge Place 9820- 106th Street Edmonton, Alberta T5K 2J6 427-6310	Environmental games and exercises Resource materials Also contact regarding workshops in your area What Am I? indoor game Studying birds and animals of Alberta
C. Hasay, Hunter-Training Extension Services Fish and Wildlife Division Department of Recreation Parks and Wildlife Centennial Building 11015 - 103 Avenue Edmonton, Alberta T5J 0H1 427-6758	Film Catalogues available to certified trainers Posters, pamphlets on Alberta wildlife Wall charts Hunter Training Course offered (contact 4-H Headquarters, Edmonton)
Adult Student Center Dept. of Extension University of Alberta 126 Corbett Hall 82 Avenue & 112 Street Edmonton, Alberta 439-2021	Library materials for free loan; ask for list of references Sound tapes Pollution and environment Information services
Alberta Government Services Public Affairs Division 11510 Kingsway Avenue Edmonton, Alberta T5G 2Y5	Provincial Film Library Send for a catalogue

MANITOBA RESOURCES

Mr. Dick LaPage
Dept. of Education
Consultant Services
Physical Education Section
Robert Fletcher Building
411-1181 Portage Avenue
Winnipeg, Manitoba
R3G 0T3

Making your own camping gear; (e.g. backpacks); survival camping; selecting a tent and other equipment; food and menu lists and hints; cross-country skiing; snow-shoeing; other related subject matter

Outdoor Education Resource Catalogue - offer excellent hiking and camping bibliography (very complete)

Dept. of Renewable Resources and Transportation Services
Box 22, 1495 St. James St.
Winnipeg, Manitoba
R3H 0W9

Publications List includes: environment, birds, mammals, building bird homes, fishing, hunting, trapping, forestry, plants and flowers, maps, compasses, information regarding Wilderness Corps extension programme for youth.

Some Edible and Poisonous Berries of Manitoba, Saskatchewan and Alberta - reference pamphlet

Mr. John Pattimore
Outdoor Education Coordinator
Parks Branch
Dept. of Tourism, Recreation and Cultural Affairs
200 Vaughan Street
Winnipeg, Manitoba R3C 1T5

Reference lists concerning: outdoor skills; a selected bibliography of naturalists' topics

Manitoba canoe route maps, 40¢ each

ONTARIO RESOURCES

Orienteering Services
446 McNicoll Avenue
Willowdale, Ontario
M2H 2E1

Compass, maps

A.T. Carnahan, Director
Student Activities and Special Projects
Ontario Dept. of Education
Mowat Block
900 Bay Street
Toronto, Ontario
M7A 1L2

Nature Study: Leader's Guide to Playground Activity

SASKATCHEWAN RESOURCES

Lois Dolby Department of Northern Saskatchewan La Ronge, Saskatchewan	"Outdoor Living in Northern Saskatchewan" $2.00 Other publications
K.L. Fawcett Head, Education Division Public Information and Education Branch	Audio visual presentations Distribution of other publications Send for publications list
Saskatchewan Orienteering Association 212 McKee Crescent Regina, Saskatchewan S4S 5S5	Orienteering
Saskatchewan Camping Association Box 823 Regina,Saskatchewan S4P 3B1	Camping
Saskatchewan Outdoor and Environmental Education Association 44 Flamingo Crescent Regina, Saskatchewan S4S 0E9	Environmental Education

BRITISH COLUMBIA RESOURCES

E.H. Lyons, R.P.F. Forester-in-Charge Ministry of Forests Information Division 1450 Government Street Victoria, B.C. V8W 3E7	Wilderness Survival - $1.00 Tree Book - $2.00 (Both in orders of 10 or more get 40% reduction.) Magazine, Forest Talk, available free
Inventory Division Ministry of Forests Legislative Buildings Victoria, B.C. V8W 3E7	Film Library for within province of B.C. Forest cover maps - charge

LIST OF SOURCES OF INFORMATION BY SUBJECT

Highway maps

- Provincial travel and tourism departments, Parliament buildings in provincial capitals.
- Major oil companies travel service departments.
- The Canadian Government Travel Bureau, Ottawa.

Topographic, hypographic maps

- Department of Energy, Mines and Resources, Chart or Map Distribution Office, 615 Booth Street, Ottawa.
- Provincial Lands and Forest or Fish and Wildlife Departments, Parliament buildings in provincial capitals.

Campground listings

- Provincial travel and tourism departments, Parliament buildings in provincial capitals.
- The Canadian Government Travel Bureau, Ottawa.

Campground guides

- Woodal's Trailering Parks and Campgrounds.
- Camping Maps, Canada - by Glenn and Dale Rhodes.
- Apache Family Camping Directory, Vesely Co.
- Rand McNally Guidebook to Campgrounds.

Hiking maps

- Hiking Trails in Canada, Greb Hiking Bureau, 1 Adam Street, Kitchener, Ontario.
- The Bruce Trail Association, 33 Hardale Crescent, Hamilton, Ontario.

Compass and map reading and orienteering

- The Silva Co., 77 York Street, Toronto
  Subject: orienteering compasses.

- The Canadian Orienteering Federation, Box 6206, Terminal A, Toronto
  Subject: competitive orienteering races.

- Orienteering Service, 446 McNicoll Avenue, Willowdale, Ontario
  Subject: Teaching aids; practising compasses, training maps, demonstrations.

- Educational Film Distributors Ltd., 191 Eglinton Avenue E., Toronto
  Subject: Films on maps, compass, orienteering.

- Kjellstrom, Bjorn, Be Expert With Map and Compass, Charles Scribner's Sons, New York; 1975.

- Dept. of Renewable Resources and Transportation Services, Manitoba, Quite a Bit About Maps and Compasses, 1977.

Boating Booklets

- Safety Afloat, Dept. of Transport, Ottawa

Making Your Own Equipment

Addresses for ordering kits to make outdoor camping gear. Send for a catalogue and price list of their supplies. Because they are from the U.S. there will be duty charged on the supplies.

- Frostline, Department GL055, Box 589, Broomfield, Colorado 80020

- Holubar Mountain Equipment, PO Box 7, Boulder, Colorado 80302

- Eastern Mountain Sports, 1041 Commonwealth Avenue, Boston, Mass. 02215

- Recreational Equipment, Inc., 1525 - 11th Avenue, Seattle, Wash. 98122

Other Sources

- Camping Today, Rand McNally page 136-7.
  Instructions for making a "wedge" tent for 2 people.

- Cunningham, J. and M. Hanson, Light Weight Camping Equipment, Charles Scribners' Sons, New York; 1976.
  Instructions and patterns for making tents, jackets, ponchos, etc.; available in paper back.

- Mechanix Illustrated, May 1976.
  Patterns for making customized back packs.

Environmental and Nature Studies

- Van Matre, Steve, Acclimatization I, American Camping Association, Martinsville, Indiana 46151.

- Van Matre, Steve, Acclimatization II, American Camping Association, Martinsville, Indiana 46151.

Outdoor Cookery

- Thomas, Dion, Roughing It Easy, Brigham Young University, Utah, 1975.

SUMMARY SHEET FOR RESOURCE INFORMATION FOR OUTDOOR PROJECTS

Activity or Project _____

Brief description of the activity

Age, Sex and Group Size
Min. Age: Max. Age: Group Size: Sex: M____ F____

Objectives

Particular Abilities or Talents Needed

Uses and Values of Project

Projects of Activities Related

Special Clothing Needed

Time & Duration of Course or Program

Type of Facility Needed
Outdoor - Indoor -

RESOURCE SUMMARY SHEET cont'd.

Materials Supplies Equipment Needed, Cost	Books, Texts Pamphlets Needed, Cost
Courses Offered Dealing with Topic	Activities & Projects Conducted at Same Time
Leadership Requirements of Instructor	Instructional Aids for Program
Resource Help in Local Area, Cost	Sources of Relevant Information
Activity in Relation to Involvement	Miscellaneous

COMMENTS

LIST OF RESOURCE PERSONS Area: _____

NAME	ADDRESS	PHONE	INVOLVEMENT IN OUTDOORS	AREA OF SPECIALTY

ENVIRONMENTAL GAMES

Games available from the following companies create awareness of the environment:

Extinction, The Game of Ecology	Sinauer Associates Inc. Publishers 20 Second Street Stamford, Conn. 06905
Pollution	Houghton Mifflin Company
Ecology	Urban Systems Inc. 1033 Massachusetts Avenue Cambridge, MA 02138
Environment	The Coca-Cola Company
Win or Loose by Esther Prasow	(SPREE) Faculty of Education University of Calgary Calgary, Alberta
Decision by Norman Lange	"
Urban Development and Pollution by Esther Prasow	"
Where Should We Stash the Trash	"

LEADER'S GUIDE TO ENVIRONMENTAL GAMES

These are games that can be adapted to teach environmental concern and appreciation of nature in your area. A section on indoor games will be especially useful for those rainy or winter days when members cannot participate in outdoor projects. For a more complete guide, send for "Environmental" games, Recreation, Parks and Wildlife, 15th Floor Centennial Building, 10015 - 103 Avenue, Edmonton, Alberta. T5J 0H1

Make A Map Game

Divide the players into pairs. Give each pair a separate area to map, and a blank paper and pencil with eraser. A writing board or magazine to write on will help. Instruct them to map their area, but in each case the starting point will be the same base. They may map a street, a part of a trail, a campground, or other choice. The map is to show all distinguishing features that make their streets or trails different from any other, but no names are written in. Thus for a stone fence, a stone fence may be drawn but not named. Tell them the time they are to return even if unfinished.

The maps are to be exchanged, and the pairs follow the trail of the map they got in exchange. At each trail sign on the map they are to find something to bring home to identify it, without being destructive, of course: from a tree, perhaps, loose bark or leaves or a special rock found beneath; for the stone fence, a special plant growing near. When no samples can be taken, the spot may be described as to color, location, etc. The couple able to follow the map most completely wins.

My Tree

This activity serves to give a child a sense of ownership, pride and value of his environment. Through a process of adopting a tree the concepts of diversity and interrelatedness can be experienced and attitudes might be influenced.

Explain that each person will adopt a tree to be their special friend. The tree selected should be apart from the rest so that each child can be alone with his friend.

There are countless numbers of things to do with your tree. Begin with a close examination of all the parts. Take pictures with your mind of the colors and shapes of the leaves, bark, seeds, branches and roots. Look at the whole tree. Think about all of the systems that work together to make the tree live like animals do. What are its requirements?

Sketch a picture of your tree and its surroundings. These are his neighbours. Draw a picture of your tree and the neighbourhood in the future. What will be different? Take some paper and make a leaf rubbing...a bark rubbing. Be aware of the textures. Measure your tree with a tape...your arms...or your hands.

Think about the usefulness of your tree. Is it a home for others? Who lives on your tree?

Put yourself in the place of your tree. Be that tree. Give yourself a name. Try to imagine yourself growing bigger, and how you will change.

Before you leave, hug your tree to get the feel of it. Sniff it and try to remember the fragrance. Return and visit your friend often. Maybe he is watching you change too.

One Foot Square

1. Divide the group into teams of fours.

2. Place a book or other object over a piece of ground approximately one foot square.

3. Give each group five minutes or less to collect as many living things as possible in that square.

4. Reward the winning group with the opportunity to select the next earth-square.

Bird Finder

Players are divided into two teams. All members on each team are numbered 1, 2, 3 and so on. They must remember their number.

Collect pictures of enough different well known birds so that you have one picture for each two players. Make a list of the bird pictures you are using.

One player agrees to be the leader. He shuffles the pictures and spreads them face up at one end of the playing area. The leader calls the name of a bird on the list and the first player on each team runs and hunts for the picture of that bird. The one who finds it scores a point for his team. The second players search for the next bird called by the leader. When all of the players have had a turn, the score is counted and the team that found the most pictures wins.

This game can also be played using leaves, animals or other categories of natural objects.

Bird Sleuth

One player is chosen to be It. He chooses a bird and then begins to describe it, one characteristic at a time. The other players try to guess who It is. The first one to do so correctly gets to choose and describe the next bird.

Econopoly

Econopoly symbolizes the exclusive possession of ownership that some industries feel they have toward the environment. The object of the game is to survive these forces and prevent environmental destruction.

The game illustrates the concept that there is a positive correlation between significant financial success and being a polluter. It also illustrates that a gain in affluence of one industry usually results in a decrease in the quality of the environment for all.

Econopoly - cont'd.

The gameboard resembles a board of the game with a similar name, made of white poster board and covered with clear adhesive plaster. The corners of the gameboard are wilderness areas, and are "safe". The key to survival may be in landing repeatedly on wilderness squares as one moves around the board; however, this is no more realistic in the game than it is in real life.

The properties located around the board are various technologies, such as oil companies, plastics and automotive industries. They exist in groupings of one, two or three; this indicates the amount of environmental destruction that they cause (an industry that occupies three squares is a three-star polluter and does more damage than a two-star or two-square polluter).

The industries are purchased in terms of survival units, not money. At the beginning of the game, each player is issued a survival kit consisting of 1000 food, 1000 water and 1000 air units. The larger polluters cost more survival units. When someone lands on one already owned by another player he is required to pay a fee in survival units. If a player runs out of a category of survival units, he may trade in another category. However, when trading in, one only receives one-half of the orginal value. For example, when trading in 100 air, one gets only 50 water or 50 food; mismanagement of resources must be penalized.

Scattered around the board between the polluters are several Eco-Risks (chance cards). Most of these are detrimental to survival, including such things as: Pay 40 water for having an electric toothbrush, electric hair curlers and electric hot-comb...You drive a 450 horse-power polluter, pay 50 air...You bought a leopard coat (60,000 cats are imported illegally every year), pay 45 food...Receive 25 water for placing a brick in your toilet tank!

These are examples of the more than 50 different cards covering all areas of current environmental concern.

This game can be played by 2 or more players in third grade and up. A 2-hour limit is usually long enough to be informative and still interest players. Trading or selling of properties among players is limited to prevent the game from extending too long.

This game helps to concentrate the inverse relationship that often exists between technology and the quality of the environment.

Have the members make up this game as a club project.

Food Chain Game

A. Players are divided into two or more teams. The first player from each team writes on a blackboard or notepaper tablet the name of an animal. The second player adds to the list the name of an animal that is known to feed on the first animal. The third player adds the name of an animal that eats the second animal, and so on. The team that has the longest list at the end of a given period of time wins. Lists go something like this: beetle, frog, snake, horned owl, mosquito, fish, merganser, commonly known as "fish duck", fox, black fly, dragonfly, crested flycatcher, red squirrel, and so on.

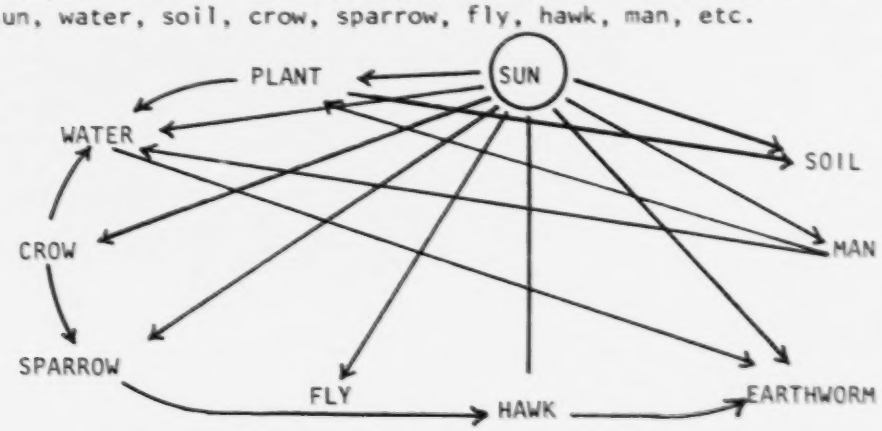
Food Chain Game

B. Cut fifteen 8 cm x 12 cm file cards in half, or make thirty slips of paper of cardboard of the same size, and on each firmly paste a picture and/or print the name of a living thing, plant or animal.

When thoroughly dry, shuffle gently and place in a pile face down. Each player takes a turn drawing a card and placing it on a face up pile in front of him. If the card A draws is an animal that can eat the object shown on B's top card, A takes B's pile and places it under his own. If, instead, B's top card can eat A's top card, B when his turn comes may take A's pile instead of drawing a card. Winner is the one with the pile at the end of the game.

Food Chain Game

C. Divide the group into groups of 8 to 10 players. Give each participant a card with labels printed on it. Labels could include: sun, water, soil, crow, sparrow, fly, hawk, man, etc.



Using a ball of string, connect each pupil up when they see a direct relationship to each other. Start with the sun, then water, soil and other organisms. It does not take long to see the complexity and interrelationship of each factor.

PROJECTS FOR ENVIRONMENTAL APPRECIATION

Leaf Prints

Have your club members collect leaves from weeds, trees, and shrubs. Bring the leaves back to the club room. Apply tempera paints to the bottoms of the collected leaves. Arrange the leaves into pleasing patterns. Place a piece of white paper on top of the leaves and evenly press down. The leaf patterns will transfer to the paper. Spatter prints can also be made. Place leaves on a white piece of paper. Then spatter paints over the leaves and the paper. Use several different colors. Poems can be written about the leaf prints and attached to them. The completed prints and poems can be used to decorate the club room.

Make-Believe Animal

After visiting a natural area or focusing attention to the miniature life which abounds in a clump of moss or within the leaf blades of a lawn, ask children to use their wildest imaginations and draw a picture of a make-believe animal or plant that might live there.

Who's Afraid?

Have your club members conduct a survey of why other members are afraid of spiders, snakes, rats, and bats. Divide into groups, each group taking a different animal on which to report. Discuss the results of the survey. Look for reasons that are similar for each animal. What methods could be used to help people get rid of these fears?

Habitat Cards

Give each member or small group of members a card with a habitat statement. The member should find an area that will satisfy what is written on the card. An example of a card would be: find a plant that provides food for birds, but this plant must grow in a sunny spot, or find a place where animals could find food.

Pantomime Nature

Have your members pantomime the actions involved in planting a tree, building a bird nest, wind, trees moving in the wind, a hurricane, waves on a beach, a blossoming flower, a seed growing into a plant, movement of different animals, etc. This creative expression helps children to identify with objects in nature.

Trash Collage

Have your group collect trash from the area. Allow the group to select pieces of the collected trash and construct a collage. The collage can be mounted on plywood, beaverboard or masonite for a permanent club room display. The resulting "pop art" can be titled, "Pollution - Is It Necessary?" Dispose of the rest of the trash in a suitable way.

Memory Collection

A collection of approximately 20 natural objects is arranged on a table and covered with a cloth. These objects might include a rock, leaf, twig, flower, seed, nut, cone and others.

Lift the cloth and allow the players to study the items for 1-2 minutes, then cover them again. The players attempt to recollect as may of the objects as they can, written down on a list. The winner is the one with the most complete list.

Nature Alphabet

The leader names a letter of the alphabet. Each player in order names a bird, flower or tree, decided on before starting, beginning with that letter. Anyone who cannot do so within a specified time - 5 seconds - loses a point. No one is to name an object which has been named before. The person who has lost the fewest points at the end of a certain time is the winner.

Nature Charades

Each member of each team picks a paper slip prepared previously by the counsellor. Each person of each team must act out object named on the paper, to his own team until they guess. Team that finishes first wins. Suggested objects: weeping willow, red-bellied snake, cricket, crow, etc.

Nature Music

See that the children have pencils and paper. Ask them to sit or stand perfectly still for two or three minutes on an agreed signal from you and to listen with all their might, writing down every sound they can identify - whisperings of pine needles, songs of birds, buzzing of mosquitoes, or chirping of crickets. The one with the longest list wins. You must be close to the children and listen carefully to check their lists.

Faking Nature Game

Group divides in half, each half visiting a different area. In a given area each group of children "doctors-up" nature, providing unnatural arrangements, e.g. tying poplar leaves to limb of spruce tree; sticking flowers in the wrong plant; sticks lined up in a row; sticks stuck in the ground; rocks piled upon rocks; acorns pushed into trunk furrows; placing pine cones on tree limbs, etc. Each group visits the other group's "unnatural nature arrangement", and attempts to locate as much "errata" as they can. Allow group to approach "doctored area" looking in silence, and keeping discoveries to themselves. Members take turns pointing out errata.

Tree Treasure Hunt

Introduce your group to the major trees in your area by drawings, pictures, or by actually taking them outdoors to see the trees. Once the members have been introduced to the different trees, set up a treasure hunt game. Use the trees that the children have been studying as landmarks. Hide objects around the area, and give groups treasure hunt maps. In order to find the treasure, the children must be able to recognize the trees used as landmarks.

Observation Bingo

Construct a Bingo card and ditto copies for your group. In the squares on the card include items that can be seen in the area such as specific trees, ferns, grasses, types of bark, etc. Children are given a time limit to mark the squares containing objects they have found. For younger children, pictures or drawings may be placed in the squares.

Plant Parts

Take your group out and have them identify parts of plants. Before going outdoors explain and point out the general plant parts: stems, branches, roots, leaves, and buds. As you walk around, have random club members name a plant part. The child must name a plant close at hand and point out the part named. This will help them learn the parts as well as the similarities among plants.

Flower Jigsaws

Go out and collect several different weeds. Cut the weeds into parts: stem, leaves, flowers, and seed pods. Place the weed parts in a box and mix them up. Divide your group into small groups and take them for a walk in the areas where you collected the plant parts. Find a shady area and then give each group their box of plant parts. The group that can reassemble the plants in their box wins.

Labelled Walk

Give each of your members a card that has an ecological relationship printed on it, such as: this is a home for a social insect or this is a plant that is dependent on another plant. For young children, drawings and words can be put on the cards. After each member has his card, allow him to go out and find situations that will satisfy the card's explanations. Each child should place his card next to the object and then tell the rest of the members why he chose the object.

Don't Hunt Me

Have the group describe what it would be like to be a hunted animal. Go out and have three or four members play the roles of a deer family. The others should be hunters. What feelings do the hunters have for the deer? How do the deer feel about the hunters? What happens when a member of the deer family is killed? Why are the hunters hunting?

Taking The Place Of Wildlife

Have your children play the role of bees, flowers, mice, owls, trees, telephone poles, buildings, grass, soil, and air. Instruct the group to act like the thing they are playing, except that they are able to talk. Make up one of the following situations for the play acting: the day the sun didn't shine; the day there wasn't any water; the day the food ran out; the day when air pollution was bad; the day noise pollution was bad; the day people littered the area.

Check-list Scavenger Hunt

Divide the group into two's or three's. Give each group a list of items that can be found such as: pine cones, bricks, yellow flowers, etc. The list should have enough room so that members can write a short sentence after each word on the list. Give the children ten to fifteen minutes to locate the items. They must write a short description of where the item was found. This type of scavenger hunt prevents over-collection of materials. A variation of this activity is to make a list of shapes and textures for members to locate.

Nature Memory Hunt

Produce a display board with about 20 different items that could be found in the area. Divide your group into three's or four's. Give them about 2 minutes to memorize what objects are on the display board. Explain that they are to find as many of the objects as possible. For each object brought back that is on the board, the group gets 5 points; for objects not on the board, the group loses 5 points. Remember, only allow them to see the display for 2 minutes. Which group had the best memory? Did the winning group divide up the objects in the display so that each person only had to remember five or six things?

LEADER'S GUIDE ANSWERS

Paper Compass (Protractor) Exercise Unit 11, Page 29

degree numbers corresponding to appropriate direction names:

N - 0 and 360	NNE - 22½	NE - 45	ENE - 67½
E - 90	ESE - 112½	SE - 135	SSE - 157½
S - 180	SSW - 202½	SE - 225	WSW - 247½
W - 270	WNW - 292½	NW - 315	NNW - 337½

Map Symbols Quiz Unit 11, Page 40

1. shrubs and trees in fence row
2. pond or lake
3. field boundary (no fence)
4. spring
5. woodland or forest
6. north arrow
7. bridge
8. private road
9. permanent stream
10. railroad
11. buildings
12. streambank erosion
13. map scale

Answers to word scramble, Unit 1, Page 45

1. balsam
2. hickory
3. tamarack
4. ironwood
5. willow
6. birch
7. spruce
8. fir
9. poplar
10. aspen

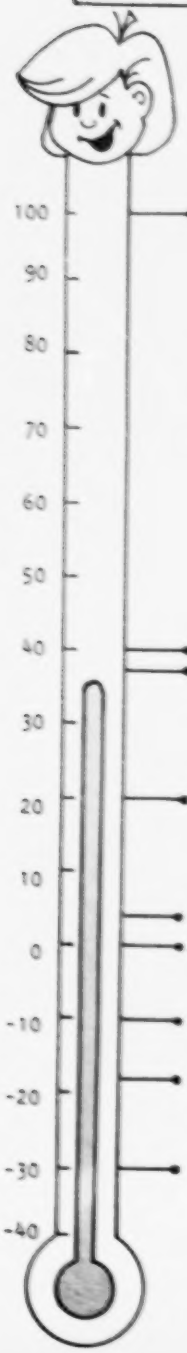
WILDLIFE PUZZLE ANSWERS - UNIT II

A T A S M B E A V E R H A L O K S A B
N L A K A L O H M I B E X U L K A E K
T A E T N A P O K O L I M B W E S T W
G N I P T C R T A R U K M A O C P A L
O K O L I K Z L P E D S H E V H F B W
F I N W C B H P Q T P G E R X I A L U
B N R A O I B F O T N E O H T C J U Z
O E T A F R N C M O Q D H I S K V E Y
N A K T S D R L G N W R G S U A W J Y
L M R O B I N A N T E L O P E D A A Z
Y X E Q M A M T P M F J P K L E B Y L
W H E R O N A M E S R C H A K E O Y L
L N D M L E R T N O X P E L M Q Y R S
A Y B L E A C A R S O B R C A L B N E
D C J S B W S A M R F T A S A M S K X
T E L B V Z T E R L A C H E W O A N M
F A I G M F R E O A N I T B A O O N T
H T J S P U A W R L Y N X E I S O Q U
K M A G P I E E B E C N O A V E A S C
N R O X T Y K A N G A R O R O D E N T

METRIC MULTIPLES AND PREFIXES TABLE

Multiplying Factor	Prefix	Symbol
$1{,}000{,}000 = 10^6$	mega (meg a)	M
$1{,}000 = 10^3$	kilo (kil o)	k
$100 = 10^2$	hecto (hek to)	h
$10 = 10^1$	deka (dek a)	da
(Base Unit) $1 = 10^0$		
$0.1 = 10^{-1}$	deci (des i)	d
$0.01 = 10^{-2}$	centi (sen ti)	c
$0.001 = 10^{-3}$	milli (mil i)	m
$0.000{,}001 = 10^{-6}$	micro (mi kro)	μ

(These prefixes may be applied to all metric base units.
Example: Base Unit = litre
Add kilo to litre (symbol kL) = kilolitre. The multiplying factor is 1000. This means a kilolitre equals 1000 litres.)



TOM THERMOMETER MEASURES TEMPERATURE IN DEGREES CELSIUS (°C)

TEMPERATURE:	°F = 9/5 + 32
	°C = 5/9 - 32

OVEN TEMPERATURES:

	°C	°F
Very slow	120-135	250-275
Slow	150-165	300-325
Moderate	175-190	350-375
Hot	200-220	400-425
Very Hot	230-245	450-475
Near boil	245-290	475-500

ADDITIONAL METRIC INFORMATION

from:

Metric Branch
Alberta Government Services
12th Floor, Park Square
10001 Bellamy Hill
Edmonton, Alberta T5J 3C1

Metric Commission Canada
Box 4000
Ottawa, Ontario

Information Division
Canada Department of Agriculture
Ottawa, Ontario K1A 0C7

District Extension Office

OR

Publications Office
Alberta Agriculture
9718 - 107 Street
Edmonton, Alberta T5K 2C8

METRIC MEASURES ARE AVAILABLE IN THESE SIZES

250 mL replaces 1 cup
500 mL replaces 2 cups

METRIC CONVERSION TABLE

Approximate Conversion to Metric Measures

SYMBOL	WHEN YOU KNOW	MULTIPLY BY	TO FIND	SYMBOL	BASE UNIT
		MASS (weight)			
oz.	ounces	28.349	grams	g	
lb.	pounds	0.454	kilograms	kg	
ton	short tons (2000 lbs)	0.907	tonnes	t	gram
g	grams	0.035	ounces	oz.	
t	tonnes (1000 kg)	1.102	short tons	ton	
		VOLUME			
tsp.	teaspoons	5	millilitres	mL	
tbsp	tablespoons	15	millilitres	mL	
fl.oz.	fluid ounces	28.413	millilitres	mL	
pt.	pints	0.568	litres	L	
qt.	quarts	1.137	litres	L	
gal.	gallons	4.546	litres	L	litres
bu.	bushels	36.370	litres	L	
mL	millilitres	0.035	fluid ounces	fl.oz.	
L	litres	1.760	pints	pt.	
L	litres	0.880	quarts	qt.	
L	litres	0.220	gallons	gal.	
L	litres	0.027	bushels	bu.	
		LENGTH			
in.	inches	2.540	centimetres	cm	
ft.	feet	0.305	metres	m	
yd.	yards	0.914	metres	m	
mi.	miles	1.609	kilometres	km	metre
mm	millimetres	0.0394	inches	in.	
cm	centimetres	0.394	inches	in.	
m	metres	3.281	feet	ft.	
m	metres	1.094	yards	yd.	
km	kilometres	0.621	miles	mi.	
		ENERGY			
kcal	kilocalorie	4.186	kilojoules	kJ	joule
kJ	kilojoules	0.239	kilocaleries	kcal	

MUNSTER METRE
MEASURES LENGTH

SAM KILOGRAM
MEASURES WEIGHT

LILY LITRE
MEASURES VOLUME